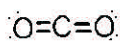


What is the Octet Rule and how is it satisfied through covalent bonding?

All atoms must obtain 8 valence electrons for stability (with the exception of H which only needs two)

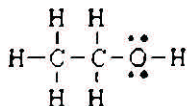
By sharing electrons the octet rule is obeyed for covalent compounds.

How many sigma and pi bonds are there in the following molecules?



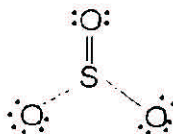
sigma 2

pi 2



sigma 8

pi 0



sigma 3

pi 1

Which of the following three molecules has the shortest bond length?

N_2 (triple bond)

O_2

N_2

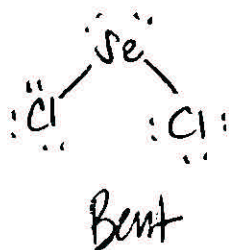
H_2

Fill in the following table

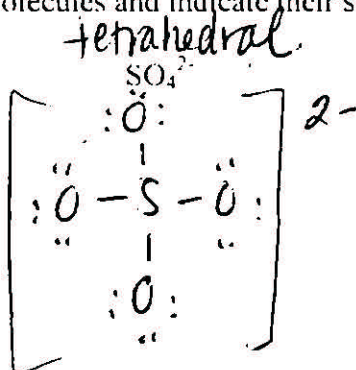
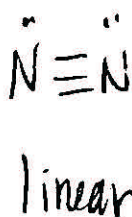
| Name | Chemical Formula |
|-----------------------------|-------------------------|
| Disulfur pentoxide | S_2O_5 |
| Hexacarbon octahydride | C_6H_8 |
| Nitrogen tetrabromide | NBr_4 |
| Triphosphorus heptachloride | P_3Cl_7 |
| Hydroiodic acid | HI |
| Hydrobromic Acid | HBr |
| Phosphorus acid | H_3PO_3 |
| Sulfuric Acid | H_2SO_4 |

Draw Lewis Structures for each of these molecules and indicate their shape.

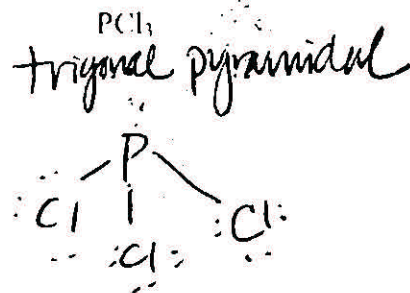
SeCl_2



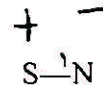
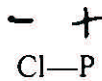
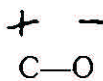
N_2



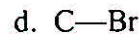
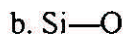
PCl_3



Indicate with + and - signs, the polarity of the following bonds



Which bond is most polar?



Why is CCl_4 a non-polar molecule even though all of its bonds are polar?

Although each bond is polar, due to the symmetry of the molecule, the polarity cancels out and the molecule remains non polar.